

## AMENDMENTS TO THE CLAIMS

- 1-17. (Cancelled)
18. (Currently Amended) A system for reforming diesel fuel into hydrogen comprising:
- feeds for water and diesel fuel;
  - a supercritical water (SCW) reactor;
  - a water-gas shift (WGS) reactor; and
  - a capturing system;
- wherein, water and diesel fuel are fed by said feeds to said SCW reactor;
- wherein said water is placed into a supercritical state within said SCW reactor;
- wherein, said SCW reactor reforms said diesel fuel into a synthesis gas comprising a mixture of including hydrogen and carbon monoxide and outputs said synthesis gas;
- wherein said synthesis gas output by said SCW reactor is fed into said WGS reactor which converts said carbon monoxide into carbon dioxide and hydrogen and outputs an output gas including a higher percentage of hydrogen to carbon monoxide compared to said synthesis gas; and
- wherein said hydrogen in said output gas is captured by said capturing system.
19. (Original) The system of claim 18 wherein said capturing system captures said hydrogen in a chemical hydride.
20. (Original) The system of claim 19 wherein said chemical hydride is sodium hydride.
21. (Original) The system of claim 19 wherein said chemical hydride is boron hydride.
22. (Original) The system of claim 18 wherein oxygen is fed into said SCW reactor in conjunction with said diesel fuel and said water.
23. (Original) The system of claim 22 wherein said oxygen is fed as a component of air.

24. (Currently Amended) The system of claim 18 further comprising a sensor and control system for monitoring at least one of said synthesis ~~syntheses~~ gas and said output gas and adjusting said feeds based on said sensing.
25. (Original) The system of claim 24 wherein said sensor and control system comprises a gas chromatograph.
26. (Currently Amended) A system for generating hydrogen from hydrocarbons comprising:
- means for creating a mixture of diesel fuel, water, and air;
  - means for taking said mixture and increasing pressure and temperature to make said water supercritical;
  - means for obtaining a synthesis gas comprising a mixture of including hydrogen and carbon monoxide from said mixture of diesel fuel, water, and air;
  - means for increasing the percentage of hydrogen in said synthesis gas; and
  - means for capturing said hydrogen in a form useful as fuel for a fuel cell.
27. (Currently Amended) A system for reforming jet fuel into hydrogen comprising:
- feeds for water and said jet fuel;
  - a supercritical water (SCW) reactor;
  - a water-gas shift (WGS) reactor; and
  - a capturing system;
- wherein, water and jet fuel are fed by said feeds to said SCW reactor;
- wherein said water is placed into a supercritical state within said SCW reactor;
- wherein, said SCW reactor reforms said diesel fuel into a synthesis gas comprising a mixture of including hydrogen and carbon monoxide and outputs said synthesis gas;

wherein said synthesis gas output by said SCW reactor is fed into said WGS reactor which converts said carbon monoxide into carbon dioxide and hydrogen and outputs an output gas including a higher percentage of hydrogen to carbon monoxide compared to said synthesis gas; and

wherein said hydrogen in said output gas is captured by said capturing system.

28. (Previously Presented) The system of claim 27 wherein said jet fuel is JP-8 fuel.
29. (New) The system of claim 27 wherein said capturing system captures said hydrogen in a chemical hydride.
30. (New) The system of claim 29 wherein said chemical hydride is sodium hydride.
31. (New) The system of claim 29 wherein said chemical hydride is boron hydride.
32. (New) The system of claim 27 wherein oxygen is fed into said SCW reactor in conjunction with said diesel fuel and said water.
33. (New) The system of claim 32 wherein said oxygen is fed as a component of air.
34. (New) The system of claim 27 further comprising a sensor and control system for monitoring at least one of said synthesis gas and said output gas and adjusting said feeds based on said sensing.
35. (New) The system of claim 34 wherein said sensor and control system comprises a gas chromatograph.